What is claimed is:

1. A pointing system for pointing a boresight along a desired line-of-sight in response to a command to point the boresight along the desired line-of-sight, the system comprising,

a base for providing a platform and for coupling base motion and line-of-sight motion of the boresight for providing a mechanical excitation,

a gimbal system comprising an elevation gimbal and an azimuth gimbal for positioning a boresight along the desired line-of-sight relative to the base, the elevation gimbal and the azimuth gimbal are modeled by a plant, the elevation gimbal and the azimuth gimbal comprise a suspension modeled by a compliance receiving the mechanical excitation and providing a compliance signal, the elevation gimbal and the azimuth gimbal are controlled by a torque signal being a sum of a compliance signal and a drive signal,

a resolver system comprising an elevation resolver and an azimuth resolver for respectively measuring as resolver responses a relative elevation angle and a relative azimuth angle of the boresight relative to the base,

a resolver filter system for resolver filtering of the resolver responses for providing a filtered resolver response, the mechanical excitation being applied to the resolver system for providing the resolver responses,

a gyro system comprising X and Y and Z gyros for measuring as gyro responses X and Y and Z angular rates of the base motion,

a gyro filter for gyro filtering of the gyro responses for providing filtered gyro respons s, and

a controller comprising gimbal motors for receiving a control input and providing motion control to the elevation gimbal and the azimuth gimbal, the control input signal being a sum of the command and the filtered resolver responses and the filtered gyro responses.

2. The system of claim 1 wherein,

the gyro system has high frequency responses effectively attenuated by the gyro filter.

3. The system of claim 1 wherein,

the resolver system has a high frequency response effectively attenuated by the resolver filter.

4. The system of claim 1 wherein,

the gyro system is an inertial reference unit.

5. The system of claim 1 wherein,

the base motion comprises vibrations.

6. The system of claim 1 wherein,

the base motion comprise trajectory motions of a moving spacecraft coupled to the base.

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7. The system of claim 1 wherein,

the controller and plant and compliance and resolver system are part of a closed-loop system having a system bandwidth,

the resolver system has a resolver frequency response greater than the system bandwidth, and

the resolver filter serves to shape the resolver response to reduce high frequency components of the resolver responses.

8. The system of claim 1 wherein,

the controller and plant and compliance and resolver system are a part of a closed-loop system having a system bandwidth,

the gyro system has a gyro frequency response greater than the system bandwidth, and

the gyro filter serves to shape the gyro response to reduce high frequency components.

9. The system of claim 1 wherein,

the controller and plant and compliance and resolver system and resolver system are part of a closed-loop system having a system bandwidth,

the resolver system has a resolver frequency response greater than the system bandwidth, and

the gyro system has a gyro frequency response greater than the system bandwidth, the resolver frequency response is greater than the gyro frequency response,

the resolver filter and gyro filter serves to match the resolver frequency response to the gyro frequency response.

10. The system of claim 1 wherein,

the controller and plant and compliance and resolver system and resolver system are part of a closed-loop system having a system bandwidth,

the resolver system has a resolver frequency response greater than the system bandwidth, and

the gyro system has a gyro frequency response greater than the system bandwidth, the resolver frequency response is greater than the gyro frequency response,

the resolver filter and gyro filter serves to match the resolver frequency response to the gyro frequency response above the system bandwidth.

11. The system of claim 1 wherein,

the controller and plant and compliance and resolver system are part of a closed-loop system have a system bandwidth, and

the gyro system is part of a feed forward loop.

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12. A pointing system for pointing a boresight along a desired line-of-sight in response to a command to point the boresight along the desired line-of-sight, the system comprising,

a base for providing a platform and for coupling base motion and line-of-sight motion of the boresight for providing a mechanical excitation,

a gimbal system comprising an elevation gimbal and an azimuth gimbal for positing a boresight along the desired line-of-sight relative to the base, the elevation gimbal and the azimuth gimbal are modeled by a plant, the elevation gimbal and the azimuth gimbal comprise a suspension modeled by a compliance receiving the mechanical excitation, the elevation gimbal and the azimuth gimbal are controlled by a torque signal being a sum of a compliance signal from the modeled compliance and a drive signal,

a gyro system comprising X and Y and Z gyros for measuring as gyro responses the X and Y and Z angular rates of the base having the base motion,

a gyro filter for gyro filtering of the gyro responses for providing filtered gyro responses,

a controller comprising gimbal motors for receiving a control input and providing motion control to the elevation gimbal and the azimuth gimbal, the control input signal being a sum of the command and the filtered gyro responses.

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13. A pointing system for pointing a boresight along a desired line-of-sight in response to a command to point the boresight along the desired line-of-sight, the system comprising,

a base for providing a platform and for coupling base disturbances to the line-of-sight of the boresight for providing a mechanical excitation,

a gimbal system comprising an elevation gimbal and an azimuth gimbal for positing a boresight along the desired line-of-sight relative to the base, the elevation gimbal and the azimuth gimbal are modeled by a plant, the elevation gimbal and the azimuth gimbal comprise a suspension modeled by a compliance receiving the mechanical excitation, the elevation gimbal and the azimuth gimbal are controlled by a torque signal being a sum of a compliance signal from the modeled compliance and a drive signal,

a resolver system comprising an elevation resolver and an azimuth resolver for respectively measuring a relative elevation angle and a relative azimuth angle of the boresight relative to the base as resolver responses,

a resolver filter system for resolver filtering of the resolver responses for providing a filtered resolver response, the mechanical excitation being applied to the resolver system for providing the resolver responses,

a controller comprising gimbal motors for receiving a control input and providing motion control to the elevation gimbal and the azimuth gimbal, the control input signal being a sum of the command and the filtered resolver responses.